A quarterly electronic publication from the NASA Scientific and Technical Information (STI) Program

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NATO *AGARD* and *DRG* Organizations Renamed

The NATO **AGARD** and **DRG** organizations have been restructured under the name Research Technology Organization (**RTO**). The **RTO** produces a number of different technical publications, including **AGARD**ographs, meeting proceedings, lecture and course notes, technical reports, and technical memoranda. In the past, many people were on a standard mailing list for some or all of these publications. The U.S. Delegation to the NATO Research and Technology Organization is currently updating the mailing lists for U.S. recipients of these NATO **RTO** publications (formerly recipients of **AGARD** and **DRG** publications).

Recipients of the former **AGARD** publications, who are interested in remaining on NATO's RTO distribution lists, must contact Ms. Gail Herbig of the NASA Center for AeroSpace Information at (301) 621-0333, or may send an e-mail to helpdesk@sti.nasa.gov.

To learn more about the NATO Research Technology Organization, visit the following URL: http://www.nato.int/structur/rto/rto.htm. To view the latest **AGARD**/**RTO** citations and abstracts of documents available from the NASA Center for AeroSpace Information, go to http://www.sti.nasa.gov/Pubs/Agard/Agard.html.

NIX Grants

Monies have been awarded to the following centers for specific projects to improve the NASA Image Exchange (**NIX**) in 1999:

- *John H. Glenn Research Center at Lewis Field* (formerly the Lewis Research Center--see announcement) for development and maintenance of a NIX mirror site.
- *Marshall Space Flight Center* for addition of QuickTime™ videos, still images for the *Propulsion Gallery* of NIX, images from Technology Transfer, and additional browse categories.
- *Johnson Space Center* for addition of high-resolution images and other low-resolution images on manned spaceflight programs from Mercury to the Space Shuttle.
- *Goddard Space Flight Center* (technical grant) for installing WAIS protocol and to develop methods for linking additional Goddard databases to NIX.

To learn more about **NIX** and its collection of images, go to http://nix.nasa.gov.

International STI

Three Japanese officials from the National Space Development Agency's (NASDA's) Technical Information Division recently visited the NASA Center for AeroSpace Information to attend a meeting, held in support of the exchange agreement between the STI programs of NASA and NASDA. The NASDA representatives gave a demonstration of their AIREX database--an aerospace information database heavily composed of NASA research materials. For more information, contact either Roland Ridgeway at rridgeway@hq.nasa.gov or George Roncaglia at g.j.roncaglia@larc.nasa.gov.

Other international STI news: The Belgian von Karman Institute for Fluid Dynamics is holding two symposia in March. The first series of lectures will take place from March 8 through March 12, concerning research in computational fluid dynamics. The second symposium will be held from March 22 through March 26, addressing research in turbulent combustion. For more information on these lecture series, visit the von Karman Institute's website at http://www.vki.ac.be.

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A New Look for the STI Home Page

The STI Program, through its product development team's efforts, is developing segmented homepages for the NASA-only and the non-NASA audiences, with the goal of delivering tailored products and services. The new NASA websites are expected to be online in Spring 1999. Access will be possible at the current URL: http://www.sti.nasa.gov. For more information, contact Lynn Heimerl at n.l.heimerl@larc.nasa.gov.

Beta-Test of NASA/SP-7602: *"NASA Publications Guide for Authors"*

The STI Program's Publications Policy Review Committee (PPRC), has recently beta-tested new documentation and guidance, intended to give information and guidelines to NASA authors for publishing their NASA STI. The beta-test has been conducted with both new and experienced authors at all ten NASA centers. Comments on the document are being reviewed by the PPRC, in order to finalize and then publish the SP. The final beta-test draft is available at http://stipo.larc.nasa.gov/pprcweb/SP7602/index.htm. For more information, you may contact either of the two co-chairpersons of the PPRC beta-test, at hsmcdona@ems.jsc.nasa.gov or Joyce.E.Turner@msfc.nasa.gov, or you may contact Lynn Heimerl of the STI Program Office at n.l.heimerl@larc.nasa.gov.

SYSTRAN Machine Translation Now Available NASA-Wide

The SYSTRAN machine translation (MT) program, developed by the U.S. Air Force, is now available on the NASA STI homepage to NASA personnel and contractors who possess the **nasa.gov** domain. The languages available for translation into English are Chinese, French, German, Italian, Japanese, Korean, Portuguese, Russian, Serbo-Croatian, and Spanish. Although there are other versions of SYSTRAN available on the Internet, the software available to NASA employees and contractors offers more technical terms, in a wider range of technical dictionaries related to chemistry, computer technology, electronics, engineering, aviation, and aerospace. NASA domain users may access this software at the NASA STI Program website at http://www.sti.nasa.gov. For more information on SYSTRAN, contact the STI Help Desk at helpdesk@sti.nasa.gov.

Recent Additions to the STI Database

The most recent additions to the NASA STI Database include nine videos of the STS-95 mission. Through these videotapes, the public can share John Glenn's latest experiences in space, as well as those of the other crewmembers. Abstracts for each day's videotapes may be found in the database, see document numbers: 19990008756, 19990008755, 19990008754, 19990008752, 19990008751, 19990008750, 19990008749, 19990008748, and 19990008745. Access to database via RECONplus can be obtained at http://www.sti.nasa.gov/reconplus/RECONplus.html.

For more information concerning the STI Program, please contact Roland Ridgeway at rridgeway@hq.nasa.gov or George Roncaglia at g.j.roncaglia@larc.nasa.gov.

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...STI Program Plan

In part, the NASA STI Program Plan states, "The NASA Scientific and Technical Information Program is an integral part of NASA's future. The program supports the Agency's missions to communicate scientific knowledge and understanding and to help transfer NASA's research and development to the aerospace and academic communities... By ensuring a fast, two-way process of internal and external information exchange, the STI Program helps NASA avoid duplication of research, time, and cost and to make its wealth of information available to benefit its customers... Each Center is responsible for acquiring, tracking, and producing or having produced NASA STI related to their Center mission; and for ensuring that Center STI reaches the STI Database [at the NASA Center for AeroSpace Information]".

To that end, each NASA Center executes the STI Program mission and objectives by way of a team of individuals that applies professional publishing standards to all scientific and technical information passing through its doors. Whether the information will result in a document to be distributed through the traditional print and mail process, or an electronic document available on the Internet--or both--the team is responsible for making it happen go through the process step-by-step with each customer. For information about the STI Program at any NASA Center, visit http://stipo.larc.nasa.gov/sti_link4text.html.

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...From Johnson Space Center

NASA/TP-1998-208920: ***"Mir Mission Chronicle: November 1994 -- August 1996"***

NASA/TP-1998-208920, by Sue McDonald, was published in December 1998. Mir space station configuration changes (including dockings by the U.S. Space Shuttle), crew exchanges, and major mission events for the period are described. The document provides a follow-up to D.S.F. Portree's "Mir Hardware Heritage" (NASA/RP-1357), published in March 1995.

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... From the Lewis Research Center

Renaming of the Lewis Research Center

As of March 1, 1999, the Lewis Research Center is now the John H. Glenn Research Center at Lewis Field. This change is having a significant impact on the Lewis web community. In addition to the name change, a commensurate change of network is occurring at the same time--the **lerc.nasa.gov** domain is being replaced by **grc.nasa.gov**. This change is actually taking place in a phased approach, during which Lewis/Glenn servers and services can be accessed at either domain. The duration of this dual domain period has not yet been set.

For those who maintain web pages, we ask that content and links be revised accordingly, on or after March 1, 1999. The new John H. Glenn Research Center website address is http://www.grc.nasa.gov

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NASA in the News

Artificial Muscles to Be Used on Robotic Space Explorers

Artificial muscles that should give space robots animal-like flexibility and manipulation ability will get their first test on a small NASA rover destined to explore an asteroid.

Under development by Dr. Yoseph Bar-Cohen of NASA's Jet Propulsion Laboratory, the artificial muscles are based on a simple, lightweight strip of highly flexible plastic that bends and functions similarly to human fingers when electrical voltage is applied to it.

Unlike human hands, which move by contracting and relaxing muscles, typical robotic arms utilize gears, hydraulics, and other expensive, heavy power-hungry parts. In future planetary exploration missions, where robots will need to perform tasks like collecting and manipulating samples of soil, complexity becomes a problem. The technology Dr. Bar-Cohen and his colleagues are developing could lead to the future development of insect-like robots that emulate biological creatures.

Further information about Bar-Cohen's research and related activities is available at http://ndeaa.jpl.nasa.gov.

NASA Aircraft Takes Student Experiments to New Heights

For the third consecutive year, college students from around the country will investigate a variety of scientific disciplines from inside a NASA aircraft in a student program originating from NASA's Johnson Space Flight Center.

The first 48 teams of students, divided into Group A and Group B, will report to Ellington Field from March 8 to March 20, and March 15 to March 27, respectively. During the first week of their two-week visit to Houston, program participants receive pre-flight training, and assemble and test their experiment packages. During the second week, the students fly with their experiments, adjusting equipment as needed, and conduct post-flight debriefings and reviews. Following the conclusion of the flight campaign, each team is required to develop a program for sharing the results of its experiment with teachers, other students, and the general public.

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NASA Headquarters

Fact Sheets Available Online

NASA Headquarters has just placed a series of fact sheets online. These fact sheets include information on the status of various programs--Space Shuttle, International Space Station, and NASA's Strategic Enterprises (i.e., Space Science, Earth Science, Aero-Space Technology, and Human Exploration and Development of Space).

The fact sheets are available at http://www.hq.nasa.gov/office/pao/facts/index.html.

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Space Exploration

Space Exploration at the Millennium: In Remembrance of Carl Sagan

A symposium, presenting key figures of 20th century creativity and achievement, is taking place Wednesday, March 24, 1999. This symposium will offer a retrospective on one of this century's crowning accomplishments--the genesis of space exploration--and it will consider its future. Attendance is open to the public and free of charge.

The symposium will feature Buzz Aldrin, Richard Berendzen, Avery Books, Yvonne Cagle, Andrew Chaikin, Franklin Chang-Diaz, Hugh Downs, Ann Druyan, Timothy Ferris, Louis Friedman, John Glenn (invited), Dan Goldin, Don Herbert, Ted Koppel (barring a media emergency), John Logsdon, Howard McCurdy, Bill Nye, Fred Ordway, Ned Potter, Kim Stanley Robinson, Donna Shirley, Edward Stone, Kathy Sullivan, and Jill Tarter.

NASA, Aerojet, American Airlines, American Astronautical Society, American University, D.C. Space Grant Consortium, Lockheed Martin, and more than a dozen other organizations are co-sponsoring the event.

Seating is limited. To help ensure your space, please register promptly at http://www.SPACE2000.org.

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NASA History Office

NASA/SP-350: *"Apollo Expeditions to the Moon"* Now on the Web

The NASA History Office is pleased to announce that *Apollo Expeditions to the Moon* (NASA/SP-350, 1975) is now available online at http://www.hq.nasa.gov/office/pao/History/SP-350/cover.html. This richly illustrated work was edited by Edgar Cortright and contains chapters written by various key figures in the Apollo Program, such as James Webb, Robert Gilruth, and Wernher von Braun. Out of print for a number of years, this web version should be of special interest because of the 30th anniversary of the Apollo 11 mission in July 1999. We would like to thank Hans-Peter Engel for doing a tremendous job scanning and formatting the text and the many full-color images for the web.

For more information on the NASA History Office, visit the NASA History Office homepage at http://www.hq.nasa.gov/office/pao/History.

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The NASA Commercial Technology Program ... *An Overview*

The NASA Commercial Technology Program encompasses a national network of specialized centers and organizations that assist U.S. businesses and industry in accessing, utilizing and commercializing NASA-funded research and technology. The organizations work closely with each other to provide a full range of technology transfer and commercialization services and assistance. The NASA Commercial Technology Network (NCTN) consists of the Commercial Technology Organizations at each of the NASA field centers, the Jet Propulsion Laboratory, the National Technology Transfer Center (NTTC), the six Regional Technology Transfer Centers (RTTCs), NASA Tech Briefs, COSMIC, UNISPHERE, and other specialized organizations and services. All are dedicated to fostering dual-use technology partnerships and the transfer and commercialization of NASA-sponsored research and technology.

The NCTN provides access to a wide variety of information resources that can be searched and consulted for research and technology, patents, technical expertise, and R&D facilities, as well as for technology partnering, licensing, and commercialization opportunities. In addition to serving as an integrated information resource, the NCTN is developing into an electronic marketplace for NASA-sponsored technology, facilitating communications, transactions, and partnerships between NASA and the U.S. private sector.

Visit the NCTN website at http://www.nctn.hq.nasa.gov for more information on the NASA Commercial Technology Program and the members of its network

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Spinoff

NASA's premier publication, **Spinoff**, features over 40 companies annually that have successfully utilized NASA technology in commercial products and processes. The main purpose of the publication is to generate greater awareness of the practical benefits resulting from the nation's investment in aerospace research and development.

Each year NASA distributes tens of thousands of **Spinoffs** through trade shows, conferences, and special requests. The **Spinoff** website, located at http://www.sti.nasa.gov/tto/spinoff.html, includes a searchable database with an entry for every article, as well as manufacturer information for articles published since 1986. Online versions of Spinoff 1996, 1997, and 1998 can also be accessed through this site.

The **Spinoff** publication focuses on NASA's contributions to areas in the private sector, including health and medicine, transportation, public safety, home and recreation, environment and resources, computer technology, and industrial productivity.

The **Spinoff** team welcomes new information regarding companies with successfully transferred NASA technology into the development of a commercial product. If you know of any companies that have done so, please contact the **Spinoff** editors, Ms. Danielle Israel, at disrael@sti.nasa.gov, telephone (301) 621-0242, or Ms. Zoë Rush, at zrush@sti.nasa.gov, telephone (301) 621-0244.

To receive a printed copy of *Spinoff*, please contact the National Technology Transfer Center (NTTC) at (800) 678-6882 or visit the NTTC website at http://www.nttc.edu.

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NASA Spinoff Developments in the News

Heart Assist Pump Effective in European Trials

A miniaturized ventricular-assist pump, developed for heart patients using NASA technology, has been successfully implanted into seven people in European clinical trials. More than twenty additional implants are expected my mid-1999.

Initially called the NASA/DeBakey heart pump, it is based in part on technology used in Space Shuttle fuel pumps. It is intended as a long-term "bridge" to transplant or as a more permanent device to help patients toward leading a more normal life.

NASA, in keeping with its mission of transferring space-based technology to the private sector, wanted to license the pump to a company that could develop and test it, with the goal of eventually bringing it to public use. MicroMed was granted exclusive rights to the technology in 1996. By 1998, MicroMed gained international quality and electronic standards certifications, got permission to begin clinical trials in Europe, and implanted the first device. In November 1998, the first patient, a 56-year-old man, received what is now called the DeBakey VAD™ in Berlin. The company hopes to begin U.S. clinical trials in mid-1999.

For more NASA spinoffs, visit the NASA Spinoff website at http://www.sti.nasa.gov/tto/spinoff.html.

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